

Application No.: 10/597,295
Filing Date: July 19, 2006

AMENDMENTS TO THE DRAWINGS

In Figures 1 and 2, please add a legend, "Prior Art." Replacement Sheets for the drawings are accompanied with this paper.

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REMARKS

This paper is in response to the Office Action dated August 12, 2008. Applicants have amended the application as set forth above. Specifically, Applicants have amended Claims 1, 2, 5 and 6. Applicants have cancelled Claim 4, and added new Claims 7-12. Applicants have amended the specification and drawings as set forth above. No new matter is added by the amendments as discussed below. Applicants respectfully request the entry of the amendments and reconsideration of the application in view of the above amendments and the following remarks.

Discussion of Amendments to Specification

The title of the invention and paragraph 0042 of the specification have been amended in response with the comments at page 2 of the Office Action.

Discussion of Amendments to Claims

The amendments to Claims 1 and 5 are made to clarify the features of the invention. Support for the amendments to Claims 1 and 5 can be found in, for example, the original Claim 1 Figure 3 and description in the specification at paragraphs 0042-0043.

The amendments to Claim 2 are made to clarify the step of outputting the output signal. The amendments to Claim 6 are made to clarify the features of the comparator. Support for the amendments to Claims 2 and 6 can be found in, for example, Figures 3 and 7 and description in the specification at paragraphs 0030, 0031, 0035 and 0042.

Support for new Claims 7, 9, and 12 can be found in, for example, Figures 4 and 5 and description in the specification at paragraphs 0042-0043. Support for new Claims 8 and 10 can be found in, for example, Figure 3. Support for new Claim 11 can be found in, for example, Figures 3-7 and description in the specification at paragraphs 0030, 0031, 0035 and 0042-0043.

As such, Applicants respectfully submit that the amendments are fully supported by the application as originally filed and do not constitute the addition of new matter. Applicants respectfully request the entry of the amendments.

Discussion of Amendments to Drawings

The amendments to Figures 1 and 2 are made to include a legend "Prior Art" in response to the comments at page 2 of the Office Action.

Discussion of Claim Objection

The Office Action objected to Claims 4 and 5. Claim 4 has been cancelled, rendering the objection to this claim moot. Claim 5 has been amended to remove all the letter labels. Applicants respectfully request the withdrawal of the objection to Claim 5.

Discussion of Rejection under 35 U.S.C. § 103

The Examiner rejected Claims 1-6 under 35 U.S.C. § 103 (a) as being unpatentable over U.S. Patent No. 5,150,334 to Crosby (hereinafter "Crosby") in view of U.S. Patent No. 4,376,990 to Metchev (hereinafter "Metchev"). Applicants respectfully disagree and submit that Claims 1-3, 5, and 6 are patentable over the references as discussed below. Claim 4 has been cancelled, rendering the rejection of the claim moot.

Disclosure of Crosby

Crosby relates to an ultrasonic system and method for monitoring the level of material in a storage vessel. Crosby, Col. 1, lines 5-8. Crosby discloses a method including a stage for distinguishing a true echo signal from a false echo signal. *Id.* at Col. 6, 15-19. In the stage, an echo signal having the largest amplitude and all echo signals having amplitudes equal to at least 50% of the largest amplitude are identified as candidates for the true echo signal. *Id.* at Col. 6, 29-35. Among the candidates, the true target signal is identified as the echo signal having the greatest pulse width. *Id.* at Col. 6, 36-37.

Crosby, however, does not disclose computing a distance value based on a period of the output signal from the comparator.

No Prima Facie Case of Obviousness Has Been Established
Against Claims 1-3, 5 and 6

Claim 1 as amended recites, among other features, "computing a distance value based on a period of the output signal." Claim 5 as amended recites, among other features, "a processing

unit for computing a distance value based on a period of the output signal.”

As discussed above, Crosby does not teach or suggest computing a distance value based on *a period of the output signal*, as recited in Claim 1 and 5. Metchev was relied on as teaching filtering a high-frequency wave from the amplified signal. Metchev does teach or suggest computing a distance value based on *a period of the output signal* from the comparator, as recited in Claims 1 and 5. No other prior art has been cited as teaching the claimed feature.

Because Crosby and Metchev do not teach every limitation of Claims 1 and 5, no *prima facie* case of obviousness has been established with regard to Claims 1 and 5. Thus, Claims 1 and 5, and their dependent claims including Claims 2, 3, and 6 are patentable over the references.

New Claim 9 is patentable over Crosby in view of Metchev

New Claim 9 recites “comparing the filtered signal against a first threshold and a second threshold so as to provide an output signal having a first level and a second level different from the first level, the second threshold being lower than the first threshold.” Claim 9 also recites that “the output signal transitions from the first level to the second level when the filtered signal changes from below the first threshold to above the first threshold, and the output signal stays at the second level when the filtered signal maintains above the second threshold,” and that “the output signal transitions from the second level to the first level when of the filtered signal changes from above the second threshold to below the second threshold, and the output signal stays at the first level when the filtered signal maintains below the first threshold.”

Neither Crosby nor Metchev teaches or suggests these features of Claim 9. In addition, one of ordinary skill in the art would not have had any reason to have the features of Claim 9 for determining arrival of an ultrasonic wave. As such, Claim 9 and its dependent claims, Claim 10, are also patentable over the references.

Further Discussion of Patentability of Dependent Claims

Applicants respectfully submit that pursuant to 35 U.S.C. § 112, ¶4, the dependent claims incorporate by reference all the limitations of the claim to which they refer and include their own patentable features, and are therefore in condition for allowance. Therefore, Applicants respectfully request the withdrawal of all claim rejections and prompts allowance of the claims.

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No Disclaimers or Disavowals

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, the Applicants are not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application. The Applicants reserve the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed herein or by any prior prosecution. Accordingly, reviewers of this or any parent, child or related prosecution history shall not reasonably infer that the Applicants have made any disclaimers or disavowals of any subject matter supported by the present application.

CONCLUSION

Applicants have responded to all issues raised in the Office Action, as set forth above. In view of Applicants' amendments to the claims and the foregoing remarks, Applicants respectfully submit that the present application is in condition for allowance. Should the Examiner have any remaining concerns, which might prevent the prompt allowance of the application, the Examiner is respectfully invited to contact the undersigned at the telephone number appearing below. Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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